CASE 3635: Application of CITIES SERVICE for an amendment to ORDER NO. R-3221, Chaves County.

Case No.

3635

Application, Transcript,
Small Exhibits, Etc.

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

September 11, 1967

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: Case No. 3635
Order No. R-3312
Applicant:
Cities Service Oil Co.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC
Other Mr. Frank Irby

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 3635
Order No. R-3312

APPLICATION OF CITIES SERVICE
OIL COMPANY FOR AN EXCEPTION TO
ORDER NO. R-3221, CHAVES COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 16, 1967, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 11th day of September, 1967, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Cities Service Oil Company, is the operator of the Drickey Queen Sand Unit Waterflood Project in the Caprock-Queen Pool, Chaves County, New Mexico.

(3) That the applicant seeks an exception to the provisions of Order No. R-3221 to permit the continued use, for emergency purposes, of four unlined surface pits located in Unit E of Section 2, Unit F of Section 3, Unit I of Section 3, and Unit A of Section 16, all in Township 14 South, Range 31 East, NMPM, Chaves County, New Mexico, for salt water disposal in its Drickey Queen Sand Unit.

(4) That the aforementioned Order No. R-3221 prohibits the disposal of water produced in conjunction with the production of

oil from any waterflood project or water pressure maintenance project on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any other place or in any manner which will constitute a hazard to any fresh water supplies in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, effective January 1, 1968.

(5) That Order (8) of said Order No. R-3221 provides that the District Supervisor of the appropriate District Office of the Commission is empowered to authorize temporary disposal in surface pits for a period not to exceed 30 days for such contingencies as injection system failures.

(6) That all salt water stored in said pits during such an emergency should be removed immediately upon cessation of the emergency.

(7) That Order (6) of said Order No. R-3221 provides that each unlined pit used for the disposal of water produced in conjunction with the production of oil or gas, or both, and not servicing a well exempt under the provisions of Order (4) of said Order No. R-3221 shall be filled, leveled, and compacted within six months after its use for the disposal of produced water is prohibited or by November 1, 1967, whichever date is later.

(8) That the intent of Order (6) of Order No. R-3221 is to eliminate possible hazards to fresh water supplies that unlined pits formerly used for the disposal of salt water might constitute, provided said pits are not necessary for use during emergencies arising from failures in injection systems.

(9) That it was not the intent of said Order (6) to prohibit the maintenance of pits of a reasonable size for temporary storage of salt water in an emergency arising as the result of a failure in the injection system of a waterflood project or water pressure maintenance project.

(10) That the aforesaid two pits located in Unit I of Section 3 and Unit A of Section 16 would be used for temporary storage only, and only as the result of an emergency arising from a failure in the injection system.

(11) That the evidence indicates that the pit located in Unit I of the aforesaid Section 3 and the pit located in Unit A of the aforesaid Section 16 are of a reasonable size for maintenance for temporary storage of produced salt water in an emergency arising

as the result of a failure in the injection system and the maintenance of such pits will not constitute an undue hazard to the fresh water supplies existing in the area of said pits provided said pits are used in accordance with the provisions of Order (8) of Order No. R-3221.

(12) That the aforesaid two pits located in Unit E of Section 2 and Unit F of Section 3 would be used for temporary storage only, and only as the result of an emergency arising from a failure in the free-water knockout system.

(13) That the pit located in Unit E of the aforesaid Section 2 and the pit located in Unit F of the aforesaid Section 3 do not constitute elements in the injection system and the applicant does not contemplate use of said pits during emergencies arising from a failure in the injection system.

(14) That the continued maintenance of the two pits located in Units E and F is not necessary for emergency storage of produced water during emergencies arising from failures in the injection system and continued maintenance of said pits will not afford the protection to fresh water supplies in the area of said pits required by Order (6) of Order No. R-3221.

IT IS THEREFORE ORDERED:

(1) That pursuant to the intent of Order (8) of Order No. R-3221, the applicant, Cities Service Oil Company, is hereby authorized to maintain the pit located in Unit I of Section 3 and the pit located in Unit A of Section 16, both in Township 14 South, Range 31 East, NMPM, Chaves County, New Mexico, for temporary storage of salt water during emergency situations arising as the result of failures in the injection system of the Drickey Queen Sand Unit Waterflood Project;

PROVIDED HOWEVER, that said pits shall be utilized in accordance with the provisions of Order (8) of Order No. R-3221, dated May 1, 1967, and any water stored therein during such emergency shall be removed immediately upon cessation of the emergency.

(2) That the application of Cities Service Oil Company for the continued use of the pit located in Unit E of Section 2 and the pit located in Unit F of Section 3, both in Township 14 South, Range 31 East, NMPM, Chaves County, New Mexico, for emergency purposes in exception to Order (2) and Order (6) of Order No. R-3221, is hereby denied.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

A. L. PORTER, Jr., Member & Secretary

esr/

DOCKET NO. 26-67

DOCKET: SPECIAL HEARING - WEDNESDAY - AUGUST 30, 1967

OIL CONSERVATION COMMISSION - 9 A.M. - MORGAN HALL, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 3644: In the matter of the hearing called by the Oil Conservation Commission upon its own motion to consider the revision of Paragraph (1) of Order No. R-3221, to provide that the effective date for the prohibition of surface disposal of produced water from the North Bagley-Upper Pennsylvanian, North Bagley-Middle Pennsylvanian, North Bagley-Lower Pennsylvanian, North Bagley-Wolfcamp, and Northeast Bagley-Wolfcamp Pools, Lea County, New Mexico, or within one mile thereof, be changed from November 1, 1967, to some earlier date.

NOTE: A COPY OF THIS DOCKET WAS MAILED TO ALL PRODUCERS IN THE ABOVE-MENTIONED POOLS ON AUGUST 11, 1967.

DOCKET NO. 27-67

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 6, 1967

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM, STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

CASE 3431 (Reopened and continued from the August 9, 1967 Examiner Hearing)

In the matter of Case 3431 being reopened pursuant to the provisions of Order No. R-3100 to permit Sinclair Oil & Gas Company to show cause why its W. H. Turner Well No. 1 located in Unit L of Section 29, Township 21 South, Range 37 East, Lea County, New Mexico, a dual completion in the Drinkard and Blinebry Oil Pools, should not be completed in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations.

CASE 3645: Application of Skelly Oil Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Lazy "J" Pennsylvanian Pool, including a provision for 80-acre spacing units for that area east of a line drawn through the centers of Sections 26 and 35, and south of a line drawn along the south line of Sections 33, 34, and 35, all in Township 13 South, Range 33 East, Lea County, New Mexico.

CASE 3646: Application of Texaco Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Delaware Sand through 12 wells in the Cotton Draw Unit Participating Area and through 3 wells on off-setting leases in Sections 10, and 28, Township 25 South, Range 32 East, Paduca-Delaware Pool, Lea County, New Mexico.

CASE 3647: Application of Tenneco Oil Company for two waterflood projects, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute two waterflood projects by the injection of water into the Delaware Sand through two wells on its State Monsanto Lease, in Section 16, and through one well on its J. D. Sena, Jr. Lease, in Section 28, both in Township 25 South, Range 32 East, Paduca-Delaware Pool, Lea County, New Mexico.

CASE 3648: Application of Tenneco Oil Company for a dual completion, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Jicarilla "A" Well No. 8 located in Unit H of Section 17, Township 26 North, Range 5 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of Tapacito-Gallup oil and Basin-Dakota gas through tubing, and the casing-tubing annulus, respectively, by means of a cross-over assembly.

CASE 3649: Application of Texas Pacific Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Ella Drinkard Well No. 2 located in Unit E of Section 25, Township 22 South, Range 37 East, Lea County, New Mexico, in such a manner as to produce oil from an undesignated Ellenburger pool and from another undesignated pool, either pre-Ellenburger or Granite Wash, through parallel strings of tubing.

CASE 3650: Application of Albert Gackle for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Jalmat and South Eunice Pools in the well-bore of his Esmond "B" Well No. 3 located in Unit K of Section 33, Township 22 South, Range 36 East, Lea County, New Mexico, with the assignment of a single allowable to said commingled production.

CASE 3635 (Corrected Notice):

Case 3635, Application of Cities Service Oil Company for an Exception to Order No. R-3221, Chaves County, New Mexico, was heard by the Commission on August 16, 1967. This notice is being given and the case will be reopened to correct the location of one of the surface pits which were the subject of the hearing. The correct location of said pit is Unit E of Section 2, Township 14 South, Range 31 East, Chaves County, New Mexico, rather than Unit L of Section 2 as previously advertised.

CASE 3651: Application of Olen F. Featherstone for the creation of a new pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Permo-Pennsylvanian pool for his Mobil-State Well No. 1 located in Unit E of Section 32, Township 14 South, Range 35 East, Lea County, New Mexico, and for the promulgation of special rules therefor including a provision for 80-acre proration units.

CASE 3652: Application of Depco, Inc. for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Artesia Unit Area comprising 2400 acres, more or less, of State lands in Townships 17 and 18 South, Range 28 East, Eddy County, New Mexico.

CASE 3653: Application of Depco, Inc. for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Artesia Unit Area by the injection of water into the Grayburg formation through 15 wells, Artesia Pool, Eddy County, New Mexico.

CASE 3654: Application of Mobil Oil Corporation for a waterflood expansion and for an amendment of Order No. R-1244, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Bridges-State Waterflood Project by the conversion to water injection of its Bridges-State Wells Nos. 63 and 73 in Units K and G of Section 13; Wells Nos. 3 and 6 in Units O and E of Section 23; Well No. 47 in Unit K of Section 24; Well No. 5 in Unit C of Section 26, and Well No. 52 in Unit A of Section 27; its State G Well No. 3 in Unit G of Section 24 and State J Wells Nos. 1 and 4 in Units I and A of Section 22, all in Township 17 South, Range 34 East, Vacuum Pool, Lea County, New Mexico.

Applicant further seeks the amendment of Order No. R-1244 to provide that future operation and expansion of said project would be subject to the provisions of Rule 701-E of the Commission Rules and Regulations.

BEFORE THE OIL CONSERVATION COMMISSION

OF NEW MEXICO

Case 3635

APPLICATION OF CITIES SERVICE OIL COMPANY FOR AN EXCEPTION TO ORDER R-3221 FOR DISPOSAL OF WATER IN SURFACE PITS, CHAVES COUNTY, NEW MEXICO

A P P L I C A T I O N

Comes now CITIES SERVICE OIL COMPANY and applies to the Oil Conservation Commission of New Mexico for an exception to the provisions of New Mexico Oil Conservation Commission Order No. R-3221 to permit the surface disposal of produced salt water in unlined surface pits, Chaves County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the operator of the Drickey Queen Sand Unit, Caprock Field, Chaves County, New Mexico, heretofore approved by this Commission, and is the operator of a water-flood project in said unit, heretofore approved by the Oil Conservation Commission of New Mexico.

2. Applicant, in connection with the operation of said unit and waterflood project has maintained surface disposal pits located as hereinafter shown, for emergency use both for the temporary storage of oil, and for temporary disposal of water.

3. Under the provisions of Order No. R-3221, paragraph (2), the use of said surface pits for emergency use will be prohibited effective January 1,1968, unless the Commission grants applicant an exception to said order.

4. There is no ground water produced in the vicinity of said pits, nor are said pits connected with any draw,

DOCKET MAILED

Date 8/2/67

streambed, arroyo or watercourse, nor will the use of said pits constitute a hazard to any fresh water supplies.

5. The surface pits heretofore used and for which applicant applies for continued use for emergency purposes, are located as follows:

(1) NE¼SE¼ Section 3, Township 14 South, Range 31 East
(2) SE¼NW¼ Section 3, Township 14 South, Range 31 East
(3) SW¼NW¼ Section 2, Township 14 South, Range 31 East
(4) NW¼NW¼ Section 16, Township 14 South, Range 31 East

all as more fully shown by plat attached hereto and made a part of this application.

6. By copy of this application, notice has been given to the office of the State Engineer.

WHEREFORE, applicant prays that this application be set for hearing before the Commission's duly appointed examiner, and after notice and hearing as required by law, the Commission enter its order granting the relief prayed for.

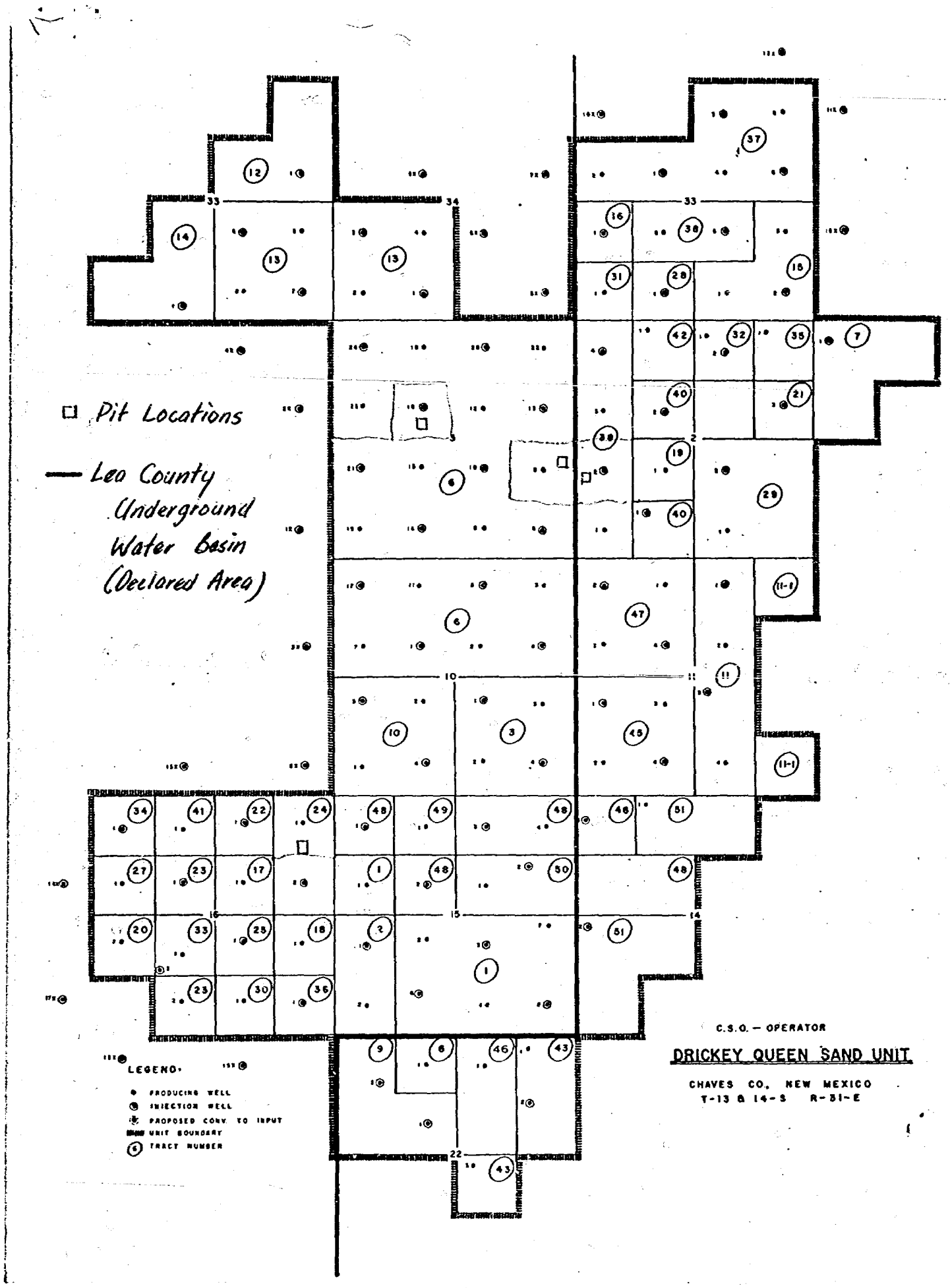
Respectfully submitted,

CITIES SERVICE OIL COMPANY

BY: Jason W. Kellahin

Kellahin & Fox
Post Office Box 1769
Santa Fe, New Mexico

ATTORNEYS FOR APPLICANT


Pit Locations
Lea County Underground Water Basin (Declared Area)
LEGEND:
PRODUCING WELL
INJECTION WELL
PROPOSED CONV. TO INPUT
UNIT BOUNDARY
TRACT NUMBER
C.S.O. — OPERATOR
DRICKEY QUEEN SAND UNIT
CHAVES CO., NEW MEXICO
T-13 & 14-S R-31-E

July

File
Case 3635

Mr. Jason W. Kellahin
Attorney at Law
P. O. Box 1769
Santa Fe, N. M. 87501

Dear Mr. Kellahin:

Receipt of a copy of the application of Cities Service seeking an exception to Oil Conservation Commission Order No. R-3221, which you filed, is gratefully acknowledged.

FEI/ma
cc-Oil Conservation Comm.

Yours truly,

S. E. Reynolds
State Engineer

By:
Frank E. Irby
Chief
Water Rights Div.

Docket No. 24-67

DOCKET: REGULAR HEARING - WEDNESDAY - AUGUST 16, 1967

OIL CONSERVATION COMMISSION - 9 A.M. - MORGAN HALL, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

ALLOWABLE: (1) Consideration of the oil allowable for September, 1967;

(2) Consideration of the allowable production of gas for September, 1967, from thirteen prorated pools in Lea, Eddy, and Roosevelt Counties, New Mexico. Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for September, 1967.

CASE 3635: Application of Cities Service Oil Company for an exception to Order No. R-3221, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the provisions of Order No. R-3221 to permit the continued use, for emergency purposes, of four unlined surface pits for salt water disposal in its Drickey Queen Sand Unit, Caprock-Queen Pool, Chaves County, New Mexico. The locations of said pits are as follows: Unit L of Section 2; Unit F of Section 3; Unit I of Section 3; and Unit A of Section 16, all in Township 14 South, Range 31 East.

CASE 3636: Application of New Mexico Salt Water Disposal Company, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in a playa lake located in Section 32, Township 10 South, Range 34 East and in Sections 2 and 3, Township 11 South, Range 34 East, Lea County, New Mexico. Applicant proposes to dispose of not more than 15,000 barrels of salt water per day into said lake.

CASE 3637: Northwestern New Mexico nomenclature case calling for an order for the extension of the following pools in San Juan County, New Mexico:

(a) Extend the Pinon-Fruitland Pool boundary to include therein:

TOWNSHIP 28 NORTH, RANGE 11 WEST, NMPM
SECTION 17: W/2

(b) Extend the Slick Rock-Dakota Pool boundary to include therein:

TOWNSHIP 29 NORTH, RANGE 16 WEST, NMPM
SECTION 6: SW/4
SECTION 7: NW/4

TOWNSHIP 29 NORTH, RANGE 17 WEST, NMPM
SECTION 1: E/2 & E/2 SW/4
SECTION 12: NE/4

CASE 3638: Southeastern New Mexico nomenclature case calling for an order for the creation of two pools and the assignment of oil discovery allowables therein, and for the abolishment and horizontal and vertical extension of certain other pools in Lea, Chaves, and Roosevelt Counties, New Mexico:

(a) Create a new pool in Lea County, New Mexico, classified as an oil pool for Abo production and designated as the Northwest Vacuum Abo Pool, comprising the following-described acreage:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
SECTION 3: NE/4 SE/4

Further, for the assignment of approximately 43,310 barrels of oil discovery allowable to the discovery well, Mobil Oil Corporation's Bridges State Well No. 122 located in Unit I of said Section 3.

(b) Create a new pool in Lea County, New Mexico, classified as an oil pool for Silurian production and designated as the South McCormack-Silurian Pool, comprising the following-described acreage:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM
SECTION 16: NE/4 SW/4

Further, for the assignment of approximately 35,930 barrels of oil discovery allowable to the discovery well, Gulf Oil Corporation's R. E. Cole (NCT-A) Well No. 8 located in Unit K of said Section 16.

(c) Abolish the North Bagley-Middle Pennsylvanian Pool in Lea County, New Mexico, described as:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
SECTION 10: W/2 and SE/4
SECTION 15: W/2
SECTION 16: E/2 and SW/4
SECTION 17: SE/4
SECTION 21: N/2
SECTION 22: W/2 and SE/4

(d) Extend the vertical limits of the North Bagley-Lower Pennsylvanian Pool in Lea County, New Mexico, to include the Middle Pennsylvanian formation with special vertical limits defined as being from 5397 feet subsea to the top of the Mississipian. Type Log: Texas Pacific Oil Company's Collier No. 1 located in Unit F of Section 10, Township 11 South, Range 33 East, NMPM.

(e) Extend the horizontal limits of the North Bagley-Lower Pennsylvanian Pool to include therein:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
SECTION 17: SE/4
SECTION 22: W/2 and SE/4

(f) Abolish the Inbe-Wolfcamp Pool in Lea County, New Mexico, described as:

TOWNSHIP 11 SOUTH, RANGE 34 EAST, NMPM
SECTION 7: SE/4

(g) Extend the vertical limits of the Inbe-Pennsylvanian Pool in Lea County, New Mexico, to include the Wolfcamp formation and redesignate said pool as Inbe-Permo Pennsylvanian Pool.

(h) Extend the Bar U-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 32 EAST, NMPM
SECTION 1: NE/4

(i) Extend the Chaveroo-San Andres Pool in Chaves and Roosevelt Counties, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 32 EAST, NMPM
SECTION 36: SE/4

TOWNSHIP 7 SOUTH, RANGE 33 EAST, NMPM
SECTION 14: SW/4
SECTION 21: NE/4

TOWNSHIP 8 SOUTH, RANGE 33 EAST, NMPM
SECTION 6: SE/4
SECTION 11: NW/4

(j) Extend the Inbe-Permo Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 10 SOUTH, RANGE 33 EAST, NMPM
SECTION 23: NW/4

TOWNSHIP 11 SOUTH, RANGE 34 EAST, NMPM
SECTION 18: E/2 SW/4
SECTION 19: NW/4

(k) Extend the Middle Lane-Permo Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 10 SOUTH, RANGE 33 EAST, NMPM
SECTION 23: NE/4
SECTION 24: NW/4

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 6, 1967

EXAMINER HEARING

IN THE MATTER OF:

Application of Cities Service Oil Company for an Exception to Order No. R-3221, Chaves County, New Mexico.

CASE 3635

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The next case will be case 3635.

MR. HATCH: Case 3635, Application of Cities Service Oil Company for an Exception to Order No. R-2331, Chaves County, New Mexico.

It was heard by the Commission on August 16, 1967. If the Examiner please, the testimony was heard in this case at the date given here, and it was only readvertised to correct the location of one of the pits that had been advertised as Unit L, and the correct location was Unit E.

MR. NUTTER: We will re-open Case 3635 with the corrected notices. Are there any appearances to be made in the case re-opened?

MR. KELLAHIN: If the Examiner please, Jason Kellahin appearing for the applicant. Mr. Hatch has covered the situation. The testimony that was offered at the hearing covered the pit at the proper location as it's advertised today. We would like to have the record corrected to show this.

MR. NUTTER: Correct notice has been given. If no appearances, we will take the case under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my hand and seal this 18th day of October, 1967.

Ada Dearnley
Notary Public

My commission expires

June 19, 1971.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3635, heard by me on 9/6, 1965.

Examiner
New Mexico Oil Conservation Commission

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 16, 1967

REGULAR HEARING

IN THE MATTER OF:

Application of Cities Service Oil Company for an exception to Order No. R-3221, Chaves County, New Mexico.

Case No. 3635

BEFORE: DAVID F. CARGO, Governor
GUYTON B. HAYS, Land Commissioner
A. L. "PETE" PORTER, Secretary-Director

TRANSCRIPT OF HEARING

MR. PORTER: We will take up Case 3635.

MR. HATCH: Application of Cities Service Oil Company for an exception to Order No. R-3221, Chaves County, New Mexico.

MR. KELLAHIN: Jason Kellahin, Kellahin and Fox, Santa Fe, appearing for the Applicant. We will have one witness and we have some exhibits we would like to put up on the board if we may do so.

MR. PORTER: We'll take a five minute break while the Applicant posts the exhibits.

(Recess.)

MR. PORTER: The Hearing will come to order, please. Mr. Kellahin, are you ready to proceed?

MR. KELLAHIN: Yes. I would like to have the witness sworn.

(Witness sworn.)

MR. KELLAHIN: In connection with the advertising in this application, there's a slight variance on the description of the location of these pits as contained in the application itself, which we want to correct.

The advertising was actually correct with the exception of the one pit designated as located in Unit L of Section 2. That pit is actually located by a check made yesterday, in Unit E of Section 2. Insofar as the other pit

locations are concerned, they were correctly advertised.

MR. PORTER: Unit E directly offsets L to the north?

MR. KELLAHIN: This is correct. We would like to proceed with the preparation of our testimony and secure an order insofar as the other three pits are concerned, if the Commission feels it necessary to readvertise as to that one pit.

MR. PORTER: We will proceed on the application for the other three pits.

MR. KELLAHIN: We would like to go ahead and present our testimony insofar as this pit is concerned, and if it is necessary to readvertise --

MR. PORTER: This is okay. The Commission will make a decision as to whether the other pit location should be readvertised.

MR. KELLAHIN: In connection with the application itself, the advertising is not in agreement with the application. The advertising hasn't been taken from the plat that was furnished, and Mr. Motter will give correct descriptions and locations of these pits, at which time I would like to amend our application to conform to the description as presented by Mr. Motter.

MR. PORTER: You may proceed.

E. F. M O T T E R, called as a witness herein on behalf of the Applicant, having been first duly sworn,was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A E. F. Motter, M-o-t-t-e-r.

Q By whom are you employed and in what position?

A Cities Service Oil Company, Area Engineer of the Tex-Mex Area.

Q Where are you located?

A In Hobbs, New Mexico.

Q Is the area involved in the application in Case 3635 under your jurisdiction?

A Yes, it is.

Q Are you familiar with the application in Case 3635?

A Yes, I am.

Q Have you previously testified before the Oil Conservation Commission and made your qualifications as an engineer a matter of record?

A Yes, numerous times.

MR. PORTER: The Commission regards Mr. Motter as being qualified to testify in the case.

Q (By Mr. Kellahin) Mr. Motter, you say you are

familiar with the application in Case 3635. Briefly stated, what does Cities Service Oil Company propose in this application?

A The application is for the continuance of existing surface pits for the temporary storage of produced salt water in the event of equipment failure.

Q Would you give the location of those pits, please?

A Yes. I would like to go to the board and take my notes with me. I will talk from this large map. This is Exhibit Number 1. I have placed in front of most people, I think, small scale plats of this. The dark blue outline is the Drickey Queen Sand Unit. We have four pits located on this plat, which we are seeking temporary storage permission. Our injection plant number 1 has a large pit right beside it, and that's located in the southeast northeast southeast of Section 3; plat number 2 and custody transfer station number 2 is located in the southeast northeast northeast Section 16 A. C. T. Custody Transfer Unit Number 2 is located in the southeast southeast northwest of Section 3, and Custody Transfer Station Number 3 is located in the southwest southwest northwest, Section 2. All in Township 14 South, Range 31 East, Chaves County.

While I'm here, I'll discuss this briefly. A short history about this particular area of the Caprock Pool. This area was developed from about '54 through '56. Cities Service

in '58, after appearing before the Commission, inaugurated a pilot waterflood in this area by injecting water into four wells. I think this was about the third project started in the Caprock Pool. This pilot proved successful and we started unitization efforts which, in October of 1959, we were successful in putting this area together, which comprised 124 wells on about 5600 acres.

As of June of this year, this unit has produced a little over six million barrels of secondary oil and we estimate there are about two and a half million barrels yet to be recovered.

Produced fluid is collected at three points, I refer to those three, where it is separated, the oil is sold at those points and the produced salt water then is brought back to our Number 1 Injection Plant through these red lines, these designated produced water.

The blue lines designated fresh water from the supply wells some three miles southeast of the unit itself. We have a six inch trunk lying between the two plants so we can move the water in either direction as needed.

We have injected all produced water in this unit since inception, in fact, as of June, we have injected about 32,000,000 barrels of water into the sixty-four injection wells, 24,000,000 barrels of this having been produced water

that was reinjected.

MR. PORTER: Mr. Motter, that's being reinjected into the producing formations?

A Yes, that's being injected, right, with the same facilities. In the month of June, these two plants injected about 15,500 barrels of water on an average per day, our water production was about 9500 barrels of water per day. Our production was about 1150 barrels per day.

While we are on oil production, I might point out that two of these pits are at custody transfer stations and I had better read these and make sure, but custody transfer average 2500 barrels a day in June.

Number 2, 364, Number 3, 435. In all three cases, we have about 1250 barrels of emergency storage which would give us three to four days' emergency storage prior to the time there would be any oil above that.

Now, we have unattended time, at the present time, of about sixteen hours or from the hours of 5:00 until 8:00 the next morning. These things do have alarms in the field in the event of failure with lights and horns that flash to warn people that live in the immediate area.

Now, I am going to tell you later on about some facilities that we are installing in the month of October which will eliminate part of this. The thing I point out is that

these two pits are for extreme emergency only. They have been there for a while. The only time they would be used would be in the event a free water knockout vessel would have bursted or the overflow popped or something. Quite frankly, I doubt if either one of those two pits have been used in the last two years. They were there and we would like to use them as an extreme emergency basis, they will be pumped out. Any time there is fluid put in, as soon as we can recover it, it will be recovered. One thing I did intend to mention to you at the outset is on these emergency pits, we would propose that any time that they are used, that with the notice by the Commission, preferably by the Hobbs office, and we will propose to notify them on the evacuation of pits.

These pits are equipped with sump pumps in the pit on floats and they are evacuated as soon as any emergency repairs have been made. They are already equipped this way, they have been for a number of years. We do reclaim the water as soon as possible.

I believe that's all I have on that particular one, Jason.

MR. PORTER: Mr. Motter, at this point, before you proceed, Mr. Kellahin, how long would you anticipate that the water would remain in the emergency pit,maximum time?

A I would estimate that in those two pits, that it

would depend upon the nature of what the trouble was. If we had some pumps broken down or something like this, where parts were hard to get, we would probably have to shut in our production and to be quite honest, I think that probably a two-day maximum, maybe even less than this, would be the most we would ever see any water in these pits. Later in my testimony, I am going to point out that on some of the facilities we are installing, I think some of this water may be recovered within two hours after we put it in there.

MR. PORTER: In no event would the water be left to evaporate but would be pumped out?

A Yes, that's our intend.

Q (By Mr. Kellahin) In the past you have used those pits more extensively than you are presently using them?

A Yes. Later on I plan to go into this but they're being used, all filters are backwashed into these pits and the water remains there until it settles for a while, the sludge drops to the bottom and we pump them back out. This may be a matter of three or four days, sometimes it may be a week.

Q Later in your testimony you will cover this, is this correct?

A Right.

Q Now, turning to what has been marked as Exhibit Number 2, would you identify that exhibit?

(Whereupon, Exhibits 1 and 2 and 3 marked for identification.)

A Yes. Exhibit 2, and I have passed out a limited amount of these, these are USGS maps. I have one here. It's a hydrologic investigation prepared by the USGS and identified as Atlas HA-62. This is a map of the northern Lea County, showing the saturated thickness of deposits, the approximate depth of the water. This map was prepared in 1952 and updated in 1961. We have enlarged a portion of this map and this red outline is the area which we have enlarged. I will go on over to the enlargement.

The solid lines indicate the depth to the base of the Ogallala or the water formation out there. The dotted or dashed lines indicate the feet of water. Now, I have superimposed on this map the area of the Drickey Queen Sand Unit, the same water lines that we have indicated over here and I have also indicated where Cities Service water wells are located, and I have put three water wells which are located, one in the unit, the other two north and south, which we have observed through the years, these are stock wells of limited capacity.

I would say probably in an amount of fifteen to twenty gallons an hour. They run continuously. The thing that we wanted to use this for is to point out that water is very limited in this area. In fact, we have had a camp up here and

have never been able to get water there. We have always had to haul the water. Since this line has been put in, we have taken water off the line. Here is a 25 foot contour which is not completed coming around of water saturation. We can verify this because we could not find any water of any quantity up here.

I think this is the Caprock along here. This well, I believe, is located off the cap. I have been to it several times, I think the map is a little bit in error there. This is off the cap, this is on top the cap.

MR. PORTER: Those are fresh water wells?

A Fresh water wells, stock or domestic. I would like to point out that this dashed line right here is the western limit of the Lea County Water Basin. You'll note that it runs right through our Drickey area. This is supposed to designate, as I am told, the Arne Basin, where water can be found in any quantity.

Q (By Mr. Kellahin) Actually, of the four pits, you have only one in the Lea County Water Basin?

A That's correct, it is in about 200 feet.

Q How far is it from the fresh water well to the pits?

A It would be this water well right here, which is approximately one and a quarter mile from the particular pit.

Q The other two wells are in excess of two miles from

any pits?

A Yes, that is correct.

COMMISSIONER HAYS: Is that water fifteen gallons a minute or an hour?

A An hour.

Q (By Mr. Kellahin) Now, turning to what has been marked as Exhibits Number 4A, B, and C, would you identify those exhibits?

(Whereupon, Exhibits 4A,B,C and 5 marked for identification.)

A Yes. Exhibits 4A, B, and C are results of water analyses which we have run on these aforementioned wells. Maybe I should identify those a little closer. The northern well is the Browning Ranch Well, the well here on the unit is the Zimmerman Ranch Well, and this well is known as the Williams Ranch Well. I would like to point out one interesting thing about this, we checked with the State Engineer and two of these wells were analyzed in 1961. The Browning Well at that time was 80 parts per million, in May of 1961, chlorides and more recent analysis by an independent lab was the same 80 parts per million.

MR. PORTER: That was during 1967?

A Yes. It was run on August 4, 1967 was the sampling date. The Zimmerman Ranch Well we had analyzed from a sampling date of August 4, same date, and it was 100 parts per

million. This compares to two tests that they had from this same well that the State Engineer had in 1961, one of 88 parts per million and the other of 110. The ironical thing about this, I didn't know this until after the tests had been run so they're fairly close. It gives evidence there has been no contamination, in our opinion.

Q (By Mr. Kellahin) Did you cover the southernmost well, Mr. Motter?

A Yes. The State Engineer does not have a, did not make an alaysis on the Williams Ranch Well, however that is 25 parts per million from our analysis, the southern well.

MR. PORTER: The recent analysis shows 25 parts per million on the Williams well?

A Yes.

Q (By Mr. Kellahin) Has it been the practice of Cities Service Oil Company to keep a watch on the wells adjacent to these pits?

A Yes, we do this normally any place where we may have pit disposals and there is fresh water in the area for our own protection, you might say, to try to observe these wells to take samples periodically and some of the samples are analyzed and the others may be tested just to see if there is any indication.

Q Do you continue to make these periodic checks?

A We would.

Q Turning to Exhibit 5, would you identify that exhibit, please?

A Yes, Exhibit Number 5 is a schematic of a proposal of repiping of some of our facilities out there so the backwash water will no longer go to the pits. As I explained earlier, previously all backwash did go to the pit where after settling it was reclaimed and pumped back into the water tank. I'll try to follow this piping diagram through. Produced water and fresh water enter through the water tank. It then comes over and goes through the filter around this direction, and into the clear water tank where it goes to injection pump and on out to the wells.

When we backwash in the future we will pull out of the clear water tank through the bottom of the filter and into a backwash tank where the water will be allowed to settle until it is time to backwash the filter again. This water then will be pumped back into the raw water tank to evacuate this tank so we can make room for another backwashing.

Now then, the only time this pit will be used is for emergency purposes in the event that all this tankage fill up and the emergency overflow line will dump into this pit. I would like to go into a system now that we are supposed to install. We have been promised delivery of October 1st on a radio alarm system to be installed in this area, which we feel

will give us a hundred percent attended time.

This radio alarm will pick up signals from some six or eight designated areas, the high levels in the custody transfers in the event we are unable to make a sale. All the injection pumps will be alarmed, the high levels in these tanks. This information is collected, is put into an encoder, the radio alarm sends a signal to Hobbs at a twenty-four hour attended station where we have a decoder located, the information is decoded, the station is advised that when our offices are open they call our office, tell them of the malfunction and this is identified by the decoder as to the location and to what the malfunction is.

If this happens during the hours when we do not have people at the office, the operator has some five or six, five numbers she is advised to call, certain numbers first, and then these people will determine what needs to be done and they will radio back to the field to the two houses we have, also two radio controlled pickups, we also have telephone communications, they will advise the person there has been a malfunction of their equipment in the field and to go correct it.

I would like to reiterate something I said a little while ago. I feel many times any malfunction may be corrected in a matter of minutes, perhaps less than an hour, with this particular phase. We have 32 of these stations in operation

right now. They are working quite successfully. They are single function alarms and the reason we don't have these signals is because they are multi-function and we won't have them until October 1st. We hope by the 15th, they will be installed.

This equipment here should be repiped by the same date. As of about October 15 we will have 100 percent attended time, the piping will be changed, our estimate on the use of the pits is probably no oftener than two to three times a year. The reason we have these pits is, as I told you before, we are processing some nine thousand barrels a day. It will probably go up, we do not like to have to shut down our producing wells because we feel this can cause some waste in waterflood.

We would like for that water, in event of emergency to go into this pit and by the way, this one big pit has the capacity of about 20,000 barrels. If it gets to the point that this pit is getting full, we will have to shut down the wells but we feel by doing this, we can continue our operations in the field,correct any malfunctions that have occurred, whether they be a breakdown or anything like this, be back in business and pump the pits out within, like I told you before, probably not over two days at any extreme emergency.

Q Now, to make this clear, Mr. Motter, the installation

you are proposing, has it been approved by your partners?

A Yes, it has been approved by partners.

Q And you are ready to make the installation?

A We are ready.

Q That includes your radio control system, too?

A Yes.

Q Do you consider automatic cutoff systems dependable in this area?

A No, sir. We have investigated the shut-down of wells over the entire field several times and we have some problems. I can stand up here the next two hours and tell you about them. This unit, when put together, had electrical connections including transformer banks on nearly every lease and those leases are identified by number.

If we were trying to cut out the power, we had to go to too many places to shut in all the wells. Also, early in the life of the flood, the wells continued to flow, even though the pump unit shut down. This meant we had to install valves in the flow lines to cut off the flow of fluid in the event the pump unit was shut down. You are aware we have had some hearings up here previously, there's a serious problem with paraffin out there and in the wintertime we felt if the valves were shut in in the winter and had crude oil, they would paraffin up to where they wouldn't reopen.

For that particular reason we have tried to avoid any automatic shut-down equipment on the wells.

Q Have you had trouble with interruption of your power supply?

A Yes, this is served from Lea County Co-op out of Lovington, it's a single feeder line going out to this area, we were not the only one that has trouble but any damage does put us out of power from time to time. One thing I did miss is that the alarm systems are battery operated and in the event of power failure, there is also an alarm.

Q Do you consider the alarm system to be more dependable than some automatic cutoffs?

A We do, yes.

Q That is the reason you are making this type of installation, is that right?

A Yes.

Q I believe you testified that your maximum unattended period on this operation would be some sixteen hours?

A Right.

Q And you have ample storage for considerably more than that period, do you?

A For crude oil we have three to four days on each unit.

Q In your past operations, you have used your pits

for the purpose of your backwash water, that is, water that has been produced and not yet ready to reinject, is this what this water is?

A Right. When the filters are backwashed after they get dirty, the dirty water goes to the pit and the affluent goes back to the raw tank. This pit has been used for emergency purposes like we are proposing now.

Q You will not use them for backwash tanks in the future?

A Not after the 15th of October.

Q These pits are unlined, is that correct?

A That's correct.

Q Why do you not desire to line them, use them as lined pits?

A Well, several reasons, cost will be quite large. We have estimated around $40,000.00 to line the pits. The life of the project is becoming limited, anytime we spend that much money we would have to leave that much more oil. We couldn't recover because of the expenditure to keep operating in the black. We frankly, don't think the water will be there long enough to cause any problems.

Q You have,actually, been having water in the pit a considerable amount of time in the past, haven't you?

A Yes. We have had water in these pits for maybe as

much as thirty days at a time in the past.

Q And have detected no contamination of fresh water zones?

A Not from the evidence I have given. I feel there is none that we can locate.

Q Were Exhibits 1, 3, and 5 prepared by you or under your supervision?

A Yes, they were.

Q And Exhibit Number 2, is that an official map of the USGS?

A That is correct.

Q And Exhibit Numbers 4A,B, and C, are these water analyses prepared for you at your request?

A Right, by an independent laboratory.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibits 1 through 5, inclusive.

MR. PORTER: If no objections, the exhibits will be admitted.

(Whereupon, Exhibits 1 through 5 offered and admitted.)

MR. KELLAHIN: At this time I would like to move to amend our application to make the description of the location of the pits conform with the evidence that has been presented.

MR. PORTER: That one pit?

MR. KELLAHIN: No, there are several errors in the

application. As I say,they were correctly advertised as to unit, but there was a misdescription in a couple of the pit locations. Mr. Motter's testimony has covered that.

GOVERNOR CARGO: You mean in your legal advertisement?

MR. KELLAHIN: Legal description.

GOVERNOR CARGO: But in the advertising or on the application?

MR. KELLAHIN: In the advertising. With the correction of one pit, they are all correct, but in the application there is one incorrect on one other, I want to conform them to the testimony.

MR. PORTER: And with the advertisement. I don't see any objection, do you?

MR. KELLAHIN: I feel as long as proper notice has been given.

GOVERNOR CARGO: I don't see any objection.

MR. KELLAHIN: Unless somebody is opposing us --

MR. PORTER: The Commission will agree to the amendment to the application. Mr. Motter, just as a matter of information, what has been the recovery ratio, secondary and primary?

WITNESS: On this particular unit?

MR. PORTER: In this unit. Yes, sir, if you have that information?

WITNESS: Well, I do. We estimate that when this unit is finalized it will run about .5 barrels of primary oil.

MR. PORTER: Up to now?

WITNESS: No, ultimate. Right now it's probably about 1.2.

MR. PORTER: One to one is considered a pretty good recovery?

WITNESS: Yes. We have made studies of all the units necessary and some we feel have done better and some do not do quite as good.

MR. PORTER: Does anyone else have a question? Mr. Nutter.

MR. NUTTER: Mr. Motter, in view of Paragraph 8 of Order R-3221, which prohibits the disposal of salt water on the surface in waterflood projects after January 1st, 1968, and the provision there for emergency use of pits, why did you feel that this Hearing was necessary?

WITNESS: Well, we wanted to really get a clarification on this. I don't understand really what the Commission meant by emergency pits. This, we hope to clear up at this Hearing. Again, it is not for disposal, it's for strictly emergency purposes, we hope to put everything underground.

MR. NUTTER: Would there be occasions when your injection system would be operating properly but your automatic

custody transfer would be shut down and you'd have to go to storage with your oil? Would there be any occasion when you would have an emergency as far as the pits were concerned, if the injection system was continuing to function?

WITNESS: I don't think so because like I have told you, we have from three to four days storage depending on the location of crude oil and also this will be alarmed through our radio system. It is alarmed in the field now through light and siren system, but sometimes if the switchers are off in one direction, they don't hear this. But we have had no problem with this whatsoever. We have had problems in the past with the pipelines. We have had to shut some wells in but other than that, we have had no problems.

MR. NUTTER: The only time that you would need it, in other words, would be the failure of the injection system?

WITNESS: Yes, that's correct. Because of the large amount of water we are using we would like to put it into emergency storage for whatever period of time it has to be.

MR. NUTTER: And sometimes you might have to take the water out of the backwash tank and put it in the pit so you could wash a filter if the water hadn't settled out yet?

WITNESS: Well, maybe. I kind of doubt. We will always have capacity to pick this back up out of the tank and put it in the raw water tank prior to the backwash. We have

been using systems such as this. I might comment that this facility was installed in 1958 and all of our waterfloods since about '62 or three have this feature built in to start.

MR. NUTTER: Normally, what number of barrels is necessary to backwash the filters?

WITNESS: About 250.

MR. NUTTER: And the capacity of the backwash tank?

WITNESS: The backwash tank is 500.

MR. NUTTER: And the raw water tank?

WITNESS: The raw water tank, I believe, is 2,000 barrels.

MR. NUTTER: Now, the raw water or the produced water that comes into the raw water tank if your injection system is functioning, just comes in and goes right on out, I presume?

WITNESS: That is correct. I might make a comment on that. The raw water tank has probably, it's, I believe, a 20 foot vessel and it has probably about, the upper level is probably about 12 or 13 feet. Now, we have this much emergency area in there in event the injection pumps go down. We have certain levels that call for extra fresh water over what we are injecting. At Number 1 we are injecting a thousand barrels a day of fresh water and 90,000 barrels of produced water so we have to have some signal. We do have six or eight feet of

storage in the tank before it gets over to the pit. So this is probably not long in 9500 barrels but it might be a couple of hours.

MR. NUTTER: At the present time you are producing 9500 barrels of water and 11,000 --

WITNESS: No,11,550 barrels.

MR. NUTTER: This flow diagram would represent the situation at each of these four pits?

A It would be the same, it would be identical. Excuse me, not four pits, two pits. We have only two injection stations. Injection plant right here and this plant, (indicating).

MR. KELLAHIN: Give the location.

MR. NUTTER: What is the situation out here at this pit right there where you are pointing?

WITNESS: That's just a small pit at the ACT Unit that we have had there for years, that we have had in the event of the failure of the free water knockout, the water will go out to this pit. At those two locations there and there we propose to pick those up mechanically if the water ever goes out there.

MR. NUTTER: In the event of the failure of the free water knockout?

WITNESS: Rupture of a vessel, the pop valve pops.

MR. NUTTER: Is there an automatic custody transfer unit out there?

WITNESS: Yes.

MR. NUTTER: And a water knockout?

WITNESS: Right.

MR. NUTTER: Is there any chance of any oil going into that pit?

WITNESS: Well, I wouldn't say it's any more likely than any other standard battery in the State of New Mexico. You can have a failure of a heater treater, this can always happen.

MR. NUTTER: You are gathering water from that system and running it in the horizontal line?

WITNESS: Yes, the red lines indicate the produced water. We try to keep the south plant on fresh water. All the produced water comes to the north plant. There is no obvious reason, I don't guess, and things that come along were used water. You can always continue to operate that south plant on fresh water.

MR. NUTTER: If the free water knockout should fail that would indicate that it is not knocking the water out of the oil or the oil out of the water?

WITNESS: Well, I am talking --

MR. NUTTER: Why couldn't the product come in from

that horizontal line, why would it have to go to the pit?

WITNESS: It could. The same thing could happen on the heater treater. We have the pits there, we think they're good precautionary measures. We can close the pits if something would happen, the water would probably go all over the area. The same thing, I think, could happen on any other battery in New Mexico.

MR. NUTTER: Would you call this a burn pit?

WITNESS: I suppose you would.

MR. NUTTER: It would be covered under Paragraph 7?

WITNESS: Yes, I assume so. The capacity of the pit is about 1500 barrels.

MR. NUTTER: Normally, they're not used for long?

WITNESS: No. They are just for safety precaution. Quite frankly, I think I testified earlier I doubt if there has been any fluid in the pits for two or three years. There's water in them right now because we have had some recent rains because I checked the other day, but other than that, there has no water gone in them.

MR. NUTTER: I believe that's all. Thank you.

MR. PORTER: Does anyone else have a question of Mr. Motter? The witness may be excused.

(Witness excused.)

MR. PORTER: Any further testimony to be offered in

the case?

MR. KELLAHIN: That's all we have, Mr. Porter.

MR. PORTER: Anyone like to make a statement or comment? The commission will take the case under advisement.

I N D E X

WITNESS	PAGE
E. F. MOTTER	
Direct Examination by Mr. Kellahin	4

E X H I B I T S

NUMBER	MARKED	OFFERED	ADMITTED
App's. 1, 2, 3	10	20	20
App's. 4A,B,C & 5	12	20	20

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceeding, to the best of my knowledge, skill and ability.

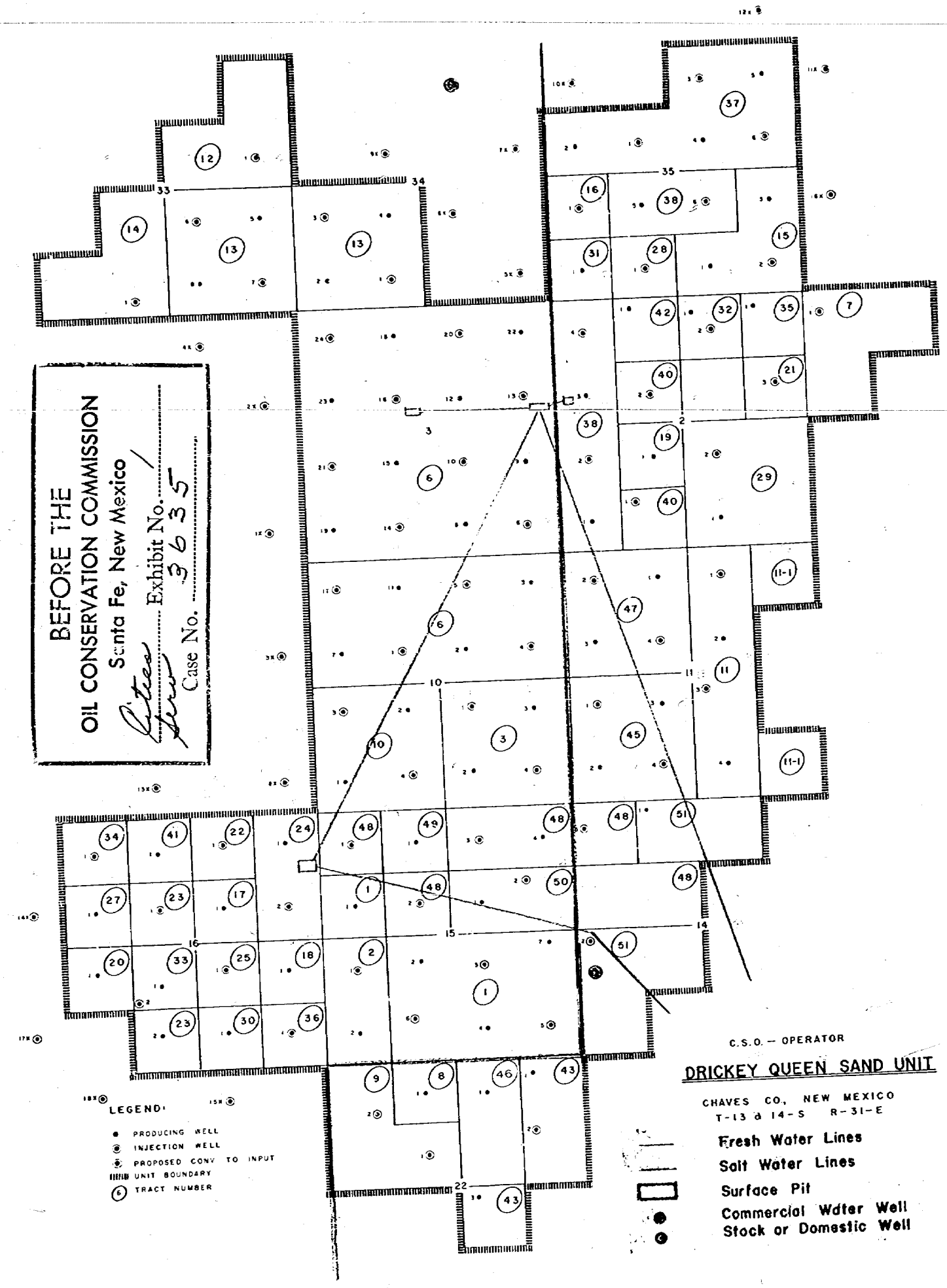
Witness my Hand and Seal this 21st day of August, 1967.

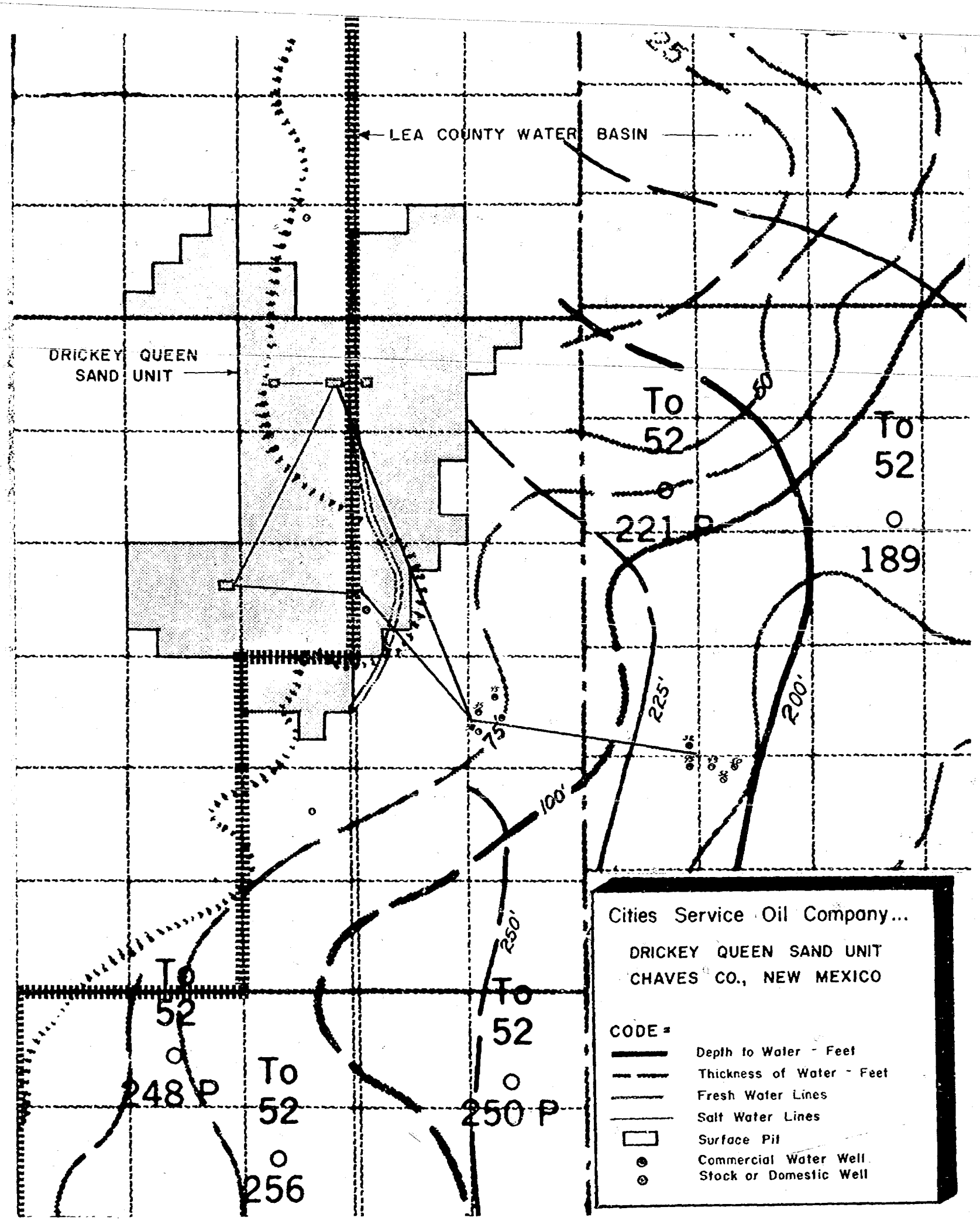
Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1971.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 1
Case No. 3635




LEA COUNTY WATER BASIN
DRICKEY QUEEN SAND UNIT
To 52
221 P
To 52
189
To 52
248 P
To 52
256
To 52
250 P
225'
200'
100'
250'
75'
Cities Service Oil Company...
DRICKEY QUEEN SAND UNIT
CHAVES CO., NEW MEXICO
CODE =
Depth to Water - Feet
Thickness of Water - Feet
Fresh Water Lines
Salt Water Lines
Surface Pit
Commercial Water Well
Stock or Domestic Well

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Company Cities Service Oil Company

Field

Lease Williams Ranch Sampling Date 8/4/67

Type of Sample Fresh Water

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	2.89	58
Magnesium (Mg++)	0.82	10
Sodium (Na+) (calculated)	1.21	28
Iron		Trace
Bicarbonate (HCO_3)	3.50	213
Carbonate (CO_3^{--})		not found
Hydroxide (OH^-)		not found
Sulphate (SO_4^{--})	0.71	34
Chloride (Cl^-)	0.71	25
8.1 pH c 68 ° F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO_3	3.71	186
Carbonate Hardness, as $CaCO_3$ (temporary)	3.50	175
Non-Carbonate Hardness as $CaCO_3$ (permanent)	0.21	11
Alkalinity as $CaCO_3$	3.50	175
Specific Gravity c 68° F 1.000		

BEFORE THE OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Cities Service
Exhibit No. 4a
Case No. 3635

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

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Company Cities Service Oil Company

Field

Lease Zimmerman Ranch Sampling Date 8/4/67

Type of Sample Fresh Water

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca^{++})	4.19	84
Magnesium (Mg^{++})	1.97	24
Sodium (Na^{+}) (calculated)	3.13	72
Iron		0
Bicarbonate (HCO_3)	3.10	189
Carbonate (CO_3^{--})	not found	
Hydroxide (OH^{-})	not found	
Sulphate (SO_4^{--})	3.37	162
Chloride (Cl^{-})	2.82	100
7.4 pH c 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO_3	6.16	308
Carbonate Hardness, as $CaCO_3$ (temporary)	3.10	155
Non-Carbonate Hardness as $CaCO_3$ (permanent)	3.06	153
Alkalinity as $CaCO_3$	3.10	155
Specific Gravity c 68° F 1.000		

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Applicant Exhibit No. 4
Case No. 3635

* mg/l = milligrams per Liter
* me/l = milliequivalents per Liter

RECEIVED — HOBBS
AUG 9 1967

Makes Water Work

TELEPHONE: HOBBS 393-6215

KE-TONE®

UNITED CHEMICAL CORPORATION
OF NEW MEXICO

601 NORTH LEECH
P. O. BOX 1499
HOBBS, NEW MEXICO 88240

Company Cities Service Oil Company

Field

Lease Williams Ranch

Sampling Date 8/4/67

Type of Sample Fresh Water

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca++)	2.89	58
Magnesium (Mg++)	0.82	10
Sodium (Na+) (calculated)	1.21	28
Iron		Trace
Bicarbonate (HCO_3)		
Carbonate (CO_3^{--})	3.50	213
Hydroxide (OH^-)		not found
Sulphate (SO_4^{--})		not found
Chloride (Cl^-)	0.71	34
	0.71	25
8.1 pH c 68 ° F		
Dissolved Solids on Evap. at 103° - 105° C	3.71	186
Hardness as Ca CO_3	3.50	175
Carbonate Hardness, as $CaCO_3$ (temporary)	0.21	11
Non-Carbonate Hardness as $CaCO_3$ (permanent)	3.50	175
Alkalinity as $CaCO_3$		
Specific Gravity c 68° F 1.000		

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 4c
Case No. 3635

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Makes Water Work

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Case 3635

KE-TONE®

UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Cities Service Oil Company Well

Field North

Lease Browning Ranch Sampling Date 8/4/67

Type of Sample Fresh Water

WATER ANALYSIS

IONIC FORM	me/l *	mg/l *
Calcium (Ca^{++})	3.19	64
Magnesium (Mg^{++})	0.82	10
Sodium (Na^{+}) (calculated)	5.04	116
Iron		0
Bicarbonate (HCO_3)	3.00	183
Carbonate (CO_3^{--})	not found	
Hydroxide (OH^{-})	not found	
Sulphate (SO_4^{--})	3.79	182
Chloride (Cl^{-})	2.26	80
7.3 pH c 68 ° F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as $CaCO_3$	4.01	201
Carbonate Hardness, as $CaCO_3$ (temporary)	3.00	150
Non-Carbonate Hardness as $CaCO_3$ (permanent)	1.01	51
Alkalinity as $CaCO_3$	3.00	150
Specific Gravity c 68° F 1.000		

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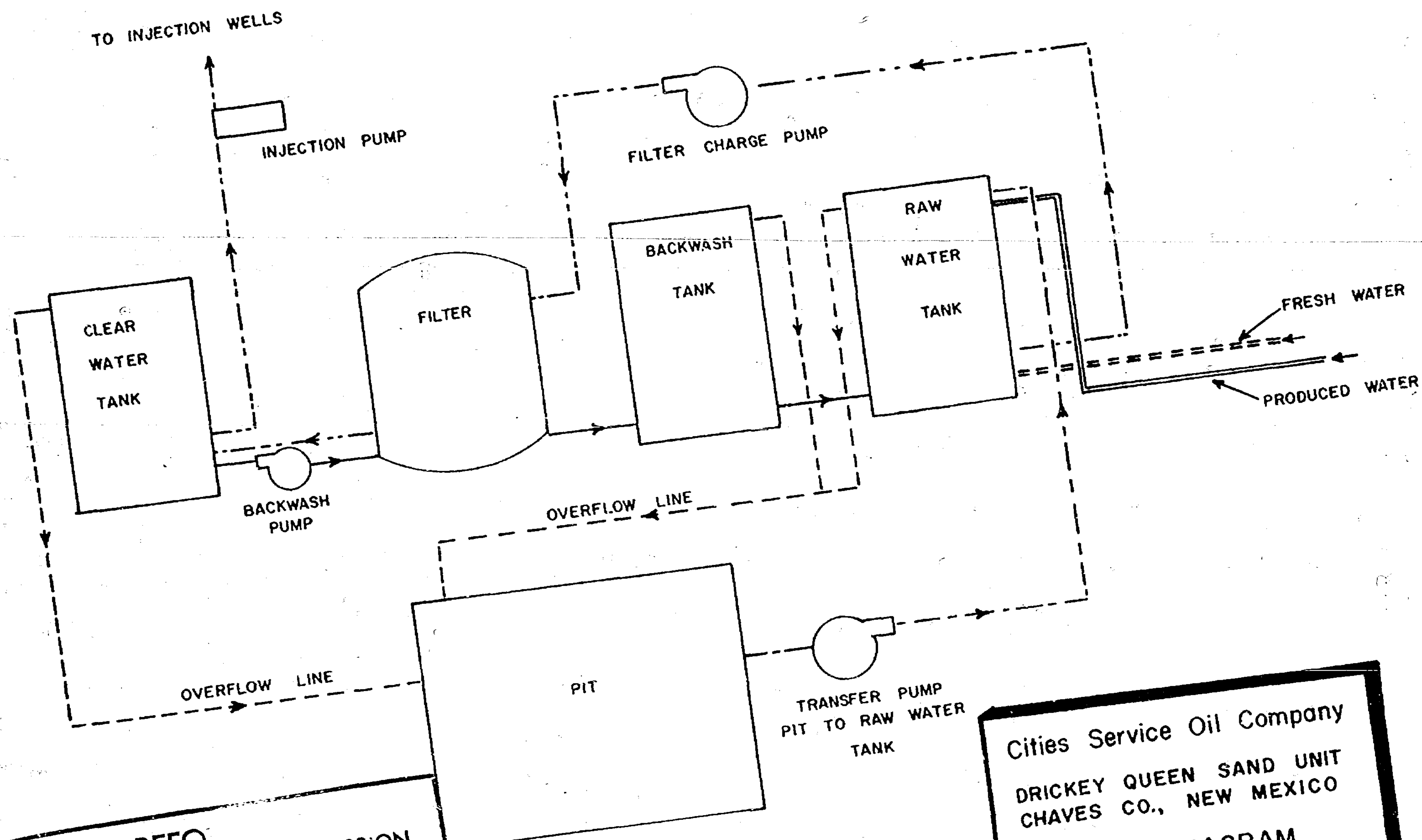
Makes Water Work



Cities Service Oil Company

DRICKEY QUEEN SAND UNIT
CHAVES CO., NEW MEXICO

FLOW DIAGRAM

BEFO[...] [...]MISSION
OIL CONSERVATI[...]
Santa Fe, [...]
Cities Service Ex[...] 5
[...]e No. 3635